Nutrient Management Act, 2002

Understanding When Farms Require a NMS, NMP or NASM Plan

P. Doris, A. Jamieson, M. Payne

Factsheet

ORDER NO. 10-035 AGDEX 720/538 APRIL 2010

INTRODUCTION

Three documents a farmer may be required to have under the regulations of the *Nutrient Management Act*, 2002, are a: nutrient management strategy (NMS), nutrient management plan (NMP) and non-agricultural source material plan (NASM). Understanding when a farm is required to have one or more of these documents is a key component of complying with the regulations.

The Act has two basic principles: environmental protection and a sustainable future for agriculture operations and rural development. NMS, NMP and NASM plans recognize the balance between these principles and attempt to help the producer successfully manage the nutrients under his/her control.

This Factsheet explains what is included in each of these documents and when a farmer is required to have a NMS, NMP or NASM plan.

OVERVIEW OF THREE NUTRIENT MANAGEMENT DOCUMENTS

- NMS documents issues such as manure generation from livestock, manure type and quantity, adequate storage capacity and acceptable runoff management. An example of when a NMS is required is for farms with greater than five nutrient units (NU) that are constructing or expanding a livestock barn or manure storage facility
- NMP outlines nutrient applications in farm fields, crop rotation, tillage, projected yields and other management approaches to optimize the utilization of nutrients by the crops
- NASM plan is similar to NMP in that it addresses field application of nutrients but this document also includes nutrients from off-farm sources such as sewage biosolids or food processing washwater and residuals; a NASM plan will also include any on-farm storage facilities that could be used to store NASM

Table 1, *Common and Distinct Components of Nutrient Management Documents*, outlines the common items and unique features for each document.

1. FARMS REQUIRED TO HAVE A NUTRIENT MANAGEMENT STRATEGY (NMS)

The Regulations concerning manure storage capacity, runoff management from livestock yards and the siting and construction requirements come into effect when a farm operation is required to have a NMS, which is termed "phased-in".

Nutrient management strategies are either approved by OMAFRA or kept on file at the farm and the farm operation is registered.

Approval of the NMS is required for:

- construction projects prior to a building permit being issued for livestock housing and/or manure storage facilities, or prior to beginning construction of a manure storage facility made of earth (i.e. earthen lagoon)
- phased-in operations with land located within 100 m of a municipal well
- farms receiving off farm material for treatment through an anaerobic digester (AD) if the AD system is a regulated mixed AD system under the NMA regulations, or
- change in ownership or control of a farm operation with a previously approved NMS where the change adversely affects the capacity to implement the existing NMS

Any NMS that does not require approval by OMAFRA results in the agricultural operation being registered in accordance with Part 9 of the Nutrient Management

Ministry of Agriculture, Food and Rural Affairs

Ontario

(NM) Protocol, The NM Protocol is incorporated as part of the regulations, which means provisions found in the Protocol are legally binding.

An agricultural operation registered under Part 9 of the NM Protocol is still required to have and follow a NMS prepared by a certified person. It must be kept on file at the farm. See www.omafra.gov.on.ca/english/nm/regs/nmpro/nmpro09_09.htm for more details on requirement information.

Figure 1, *Farms Phased-In (no construction)* and Figure 2, *Farms Phased-In (with construction)* summarizes when farm operations are "phased-in".

A NMS prepared because of conditions set out in Figure 1a usually result in the farm operation registering under Part 9 of the NM Protocol. However, Figure 1b outlines three scenarios that require the approval of the NMS.

In contrast are operations required to have a NMS because of the conditions outlined in Figure 2a, for example prior to building a livestock barn or manure storage facility). As noted in Figure 2b, these situations require OMAFRA to approve the NMS. With these types of construction projects, approval of the NMS before construction helps ensure that manure management issues are addressed early in the planning process. As such, issues such as adequate manure storage capacity, acceptable runoff management, proper setbacks to wells, surface water and other sensitive features can be factored into the business plan for the new or expanded facility from the start.

Once a farm is required to have a NMS, it must be renewed every five years assuming the operation continues to generate manure (i.e. continues to have livestock or poultry), or whenever one of the other triggers in Figure 1a or Figure 2a are met

Requirements for All Farms

Most provisions of the Regulation do not apply to farm units that generate five or fewer nutrient units of manure annually. The exception is that all farm units, regardless of size, are currently subject to the following provisions of the Regulation:

- High trajectory guns are banned for the land application of:
  - —non-agricultural source materials with less than or equal to 99 per cent moisture content and
  - —manure with less than or equal to 99 per cent moisture content.
- Spreading material from a regulated mixed anaerobic digester must adhere to land application standards (s. 98.11 and 98.12)
- Vegetated filter strip systems for runoff must be properly designed, operated and maintained (Part IX.2)
- If the farm operation receives off-farm anaerobic digestion (AD) material for treatment through AD system regulated under the Act the farm operation must have an approved nutrient management strategy
- As of January 1, 2011, any farming operation that stores or applies NASM must be done in accordance with the regulations (unless they have a valid certificate of approval for land application (transitioning to Jan 1, 2016)).

Nutrient Units (NU)

In the Regulation, a nutrient unit is defined as "the amount of nutrients that give the fertilizer replacement value of the lower of 43 kg of nitrogen or 55 kg of phosphate as nutrient as established by reference to the Nutrient Management Protocol". Nutrient units are calculated by looking at Table 1 in the Nutrient Management Tables. It lists various species and sizes of animals, and the number of each it takes to generate one NU. See www.omafra.gov.on.ca/ english/nm/regs/nm_tab01_09.htm for Table 1. See the following example for nutrient unit calculations.

Example:

Livestock	**Nutrient unit conversion factor** (from Table1 in the NM Tables)	**Nutrient Units**
100 beef backgrounders	3	33
10 medium frame horses	1	10
Total Nutrient Units		**43**

Table 1. Common and Distinct Components of Nutrient Management Documents

Nutrient Management Strategy (NMS) Issues related to the generation of nutrients	**Nutrient Management Plan (NMP)** Issues related to the application of nutrients on agricultural land	**Non-Agricultural Source Material Plan (NASM)** Issues related to application of NASM and other nutrients on agricultural land and on-farm storage of NASM
Description of the agricultural operation		
Location(s) of the farm operation (lot, concession, roll number, etc)		
Contact information for the farm operator		
Contingency Plan		
Farm unit map(s) showing location(s) and specific details about barns, barnyards, generating sites, storage sites and sensitive features such wells and surface water		List of sources of NASM
Amount of manure generated and volumes of other prescribed materials such as runoff or milkhouse washwater	Amount of manure and other agricultural source materials (ASM) to be applied along with other nutrients. If category 2 or 3 NASM are to be applied then a separate NASM plan must be prepared.	Nutrient analysis of the NASM material(s)
		On farm storages for NASM regulated under Ontario Regulation 267/03
Agreements with brokers or with operators of other phased-in farm unit operations accepting manure or agricultural source material (ASM) that was generated at your operation	Agreements with brokers or other people providing additional manure or other ASM materials to be land applied on your farm unit	Documentation to show that NASM meets beneficial use criteria for application on agricultural land
Number and type of animals	Nutrient information (application rates, nutrient analysis, timing, surface application vs incorporated vs injected, agronomic and crop removal balances for nitrogen and phosphorous etc)	
List of storage facilities and capacities	Field properties (acreage, presence of surface water, tile drains, soil analysis, soil series, slope, etc) and field sketch	
Runoff management	Cropping practices, crop rotation and yields	
Temporary field storages sites for manure	Land base information	
Limited information on destination(s) for manure and prescribed materials generated (i.e. land base available for application or transferring manure off the farm unit to other operations)	Field maps showing acreage and specific details about sensitive features such as surface water, tile inlets and outlets, wells, presence of tile drains	

2. FARMS REQUIRED TO HAVE A NUTRIENT MANAGEMENT PLAN (NMP)

Other than the provisions that apply to all farms, the remainder of the regulations concerning land application of manure and other agricultural source material (ASM) such as runoff and milkhouse washwater come into effect on a farm when it is required to have a nutrient management plan (NMP). It is important to note that a farm can only be required to have a NMP if it is also required to have a NMS first.

A farm is required to have a NMP when:

- livestock numbers are equal to or greater than 300 NU or
- a phased-in farm unit is located within 100 m of a municipal well.

The NMP outlines cropping practices, field management and land application of manure and other nutrients according to accepted agronomic practices. It can help the farmer optimize the value of the manure and other nutrients in the cropping program while minimizing the risks to surface and ground water resources.

Even if the Regulation does not require a farming operation to have a NMP, by undergoing the NMP process a farmer can find opportunities to better utilize the nutrients from manure and other materials and save money on fertilizer purchases.

Figure 1a. FARMS PHASED-IN (no construction)

- Expanding ≥ 300 NU (i.e. livestock numbers increasing to ≥ 300 NU using existing facilities)
- Existing ≥ 300 NU
- Previously phased-in operations that:
  - are required to renew NMS after five years
  - have had change in ownership or control that adversely affects capacity to implement the NMS or
  - were considered new under s. 11(1) of the regulation between September 3,0 2003 and December 31, 2005

Figure 1b. What Must They Do?

- Get an **APPROVED** Nutrient Management Strategy (NMS) if
  - i. phased-in as above and any part of farm unit is within 100 metres of municipal well
  - ii. If the agricultural operation treats materials through a mixed anaerobic digestion (AD) facility or
  - iii. Change in ownership or control of operation with pre-existing approved NMS where the change adversely affects ability to implement NMS

If (i), (ii) or (iii) does not apply, then NMS is kept on file at farm and farm **REGISTERS** with OMAFRA under Part 8 of the NM Protocol

- Manage manure and other nutrients (e.g., run-off and washwater) according to NMS

Figure 2a. FARMS PHASED-IN (with construction)

- > 5 NU and ANY building permit* for livestock barn and/or manure storage facility
- > 5 NU and construction of earthen storage
- Construction of regulated mixed anaerobic digester

*Up to December 31, 2010 in unorganized territories in Northern Ontario, a NMS must be prepared prior to these construction projects and the farm operation registers with OMAFRA; approval is not required. Due to a recent regulatory amendment, after this date, approval of the NMS by OMAFRA will be required prior to commencing construction.

Figure 2b. What Must They Do?

- Get an **APPROVED** NMS (Record of Approval provided by OMAFRA)
- Adhere to construction and siting requirements, and
- Manage manure, AD digestate and other nutrients (e.g., run-off and washwater) according to NMS (including construction and siting)

3. FARMS REQUIRED TO HAVE A NASM PLAN

Some farms receive materials for land application that originate "off-farm". These off-farm materials are known as non-agricultural source materials (NASM). Examples of NASM include sewage biosolids, pulp and paper biosolids and residual materials from food processors. Usually, land application of NASM requires a certificate of approval from the Ministry of the Environment under the *Environmental Protection Act.*

However, new regulatory amendments that come into effect January 1, 2011 will replace the certificate of approval with a "NASM plan" if these materials are classified as "Category 2 NASM" or "Category 3 NASM".

For farms applying up to 20 tonnes per hectare of Category 1 NASM such as some vegetable culls, no NASM plan is required. For a complete list of materials in each category, go to www.e-laws.gov.on.ca and search for "O. Reg 267/03".

Table 2 highlights the three categories of NASM and the approval requirements for NASM Plans. The full tables with the NASM categories are located in Schedule 4 at the end of the Regulations.

There is a transition period with this regulatory change — certificates of approval issued to apply NASM on agricultural land up to December 31, 2010 will continue to be valid for up to five years from the approval date. In other words, a NASM plan would not be required until the existing certificate of approval expires or is revoked.

Table 2. NASM Categories and Approval Requirements

Category	Plan Requirement
1 NASM	• Does not exceed 20 t/ha (wet weight basis) application rate and follows land application standards. • Example of Category 1 NASM includes leaf and yard waste that has not been composted.
2 NASM	• For land application of materials with metal content rated as "CM1", have NASM plan and register with OMAFRA. • Any on-farm storage of Category 2 NASM or if the metal content is rated "CM2", have approved NASM plan. • Example of Category 2 NASM includes organic waste or washwater from a brewery or distillery.
3 NASM	• Have an approved NASM Plan for all activities with Category 3 NASM on the farm. • Examples of Category 3 NASM include sewage biosolids or washwater from an abattoir or dairy processing facility.

A NASM plan is similar to a NMP because both documents deal with the land application of nutrients and both documents address sensitive features such as watercourses and wells. The NASM plan however includes testing of the materials and the soils for 11 metals and can include other requirements such as limits on fats, oil and grease or sodium. In addition, whereas a NMP would include all the agricultural fields in a farm unit, a NASM plan can be limited to one or more fields where the NASM is going to be applied and the NASM storage area on the farm.

A certified NASM plan developer must complete the NASM plan. See *Preparation of NASM* on the next page for more information.

Currently, a farm that applies NASM and is required to have NMP must submit the NMP to OMAFRA for approval. But once the new regulatory amendments come into effect on January 1, 2011 the NMP will not have to be approved. Instead a NASM plan must be completed and approved for both Category 3 materials and Category 2 materials with a metal content rated as "CM2 "in the regulations.

In addition, there will be farms that are only required to have a NASM plan with no requirement for a NMS or NMP. An example would be a cash crop farm receiving sewage biosolids. Assuming there is no pre-existing certificate of approval, after January 1, 2011, a NASM plan would be required by the cash cropper to receive sewage biosolids on the farm.

For a complete overview of NASM requirements, go to www.ontario.ca/nasm-omafra

FARM UNIT

In preparing a NMS, a NMP, or NASM plan the name and contact information for the farm operator must be identified, along with the location information for the farm including lot, concession, name of the municipality and the roll number. The Farm Unit Declaration form documents this information.

Those who farm on more than one property (i.e. more than one deed) can include additional properties in the farm unit. Choices include:

- preparing a NMS or NMP for only the "generating" property (i.e. where the livestock facilities are located)

or

- preparing a NMS or NMP for the generating property plus additional properties that either owned or rented

If preparing a NMS to build a manure storage facility or barn for livestock housing, as a minimum, the property where the construction is to occur must be included in the farm unit.

As previously mentioned, a NASM plan will include contact information for the farmer and location but it may be limited to NASM storage facility(ies) on the property and the field(s) where the NASM is to be applied and not necessarily the entire property.

PREPARATION OF NMS, NMP AND NASM PLAN

Table 3 summarizes the certification requirements for individuals preparing a NMS, NMP or NASM Plan. For a self-prepared NMS or NMP, the farmer can save money by not having to hire the services of a consultant. As an added benefit, because the farmer knows his or her operation, options can be examined in terms of what is required under the regulation and what is practical for this specific farming operation.

Table 3. Summary of preparation options for NMS, NMP and NASM Plans

Options for preparation	Certificate requirement	Requirements
NMS or NMP prepared by farmer	Agricultural Operation Planning Certificate	• Nutrient Management Regulations and Protocols course • Introduction to Nutrient Management course or equivalent
NMS or NMP prepared by a certified consultant	Agricultural Operation Strategy and Plan Development Certificate	On the OMAFRA website, search for "Private sector nutrient management consultants" in search engine and contact prospective consultants about price, services offered, timelines, etc.
NASM Plan prepared by a certified consultant	NASM Plan Developer's Certificate	• NASM Plan Developers Course • Introduction to Nutrient Management course • NMAN software course • Complete required assignments and • Pass an exam

If the farmer opts to hire a consultant, some time is saved because the consultant can start quickly and the farmer will benefit from the consultant's professional experience. When working with any potential service provider, farmers are encouraged to ask about the price for this service and ask for professional references and timelines when the consultant will be expected to have a completed NMS/P.

NASM Plan Developer certification is required for individuals preparing NASM plans. Certification includes three courses, including the NASM Plan Developers course, successful completion of two assignments and passing an exam.

CONCLUSION

In addition to being a regulatory requirement for some farms, a NMS, NMP and NASM plan can help a farmer chart a course for the future, which optimizes use of nutrients on the farm while protecting nearby water resources. The NMS addresses issues in and around the barn such as the amount of manure generated, adequate storage capacity and acceptable runoff management. The NMP documents application of the nutrients in the fields that safeguard nearby water resources such as wells and surface water while maximizing the utilization of nutrients by the crops. Because of recent regulatory changes, a NASM plan will be required starting January 1, 2011 for some off farm materials that are applied to agricultural fields.

This factsheet was written by **Peter Doris,** Environmental Specialist, Brighton, **Andrew Jamieson**, P. Eng., Water Management Engineer, Elora and **Michael Payne**, Environmental Specialist, Stratford, OMAFRA.

FOR YOUR NOTES

Agricultural Information Contact Centre:
1-877-424-1300
E-mail: ag.info.omafra@ontario.ca
Northern Ontario Regional Office:
1-800-461-6132

www.ontario.ca/omafra

POD
ISSN 1198-712X
Également disponible en français
(Commande nº 10-036)

PROTECTING OUR ENVIRONMENT
Ontario

10-035